AMENDMENTS OF CLAIMS AND SPECIFICATION

In response to the Office communication dated 9/5/02 (cover as Exhibit "A", attached), please amend the above-identified application as follows:

In The Specification

Please replace, on page 2, the list of US PATENT DOCUMENTS, with the following list:

-- 07/339,976 04/18/1989 Swartz, M. R., "Systems to Increase the Efficiency, Control, Safety and Energy Utilization of Electrochemically Induced Fusion Reactions".

C1

07/371,937 06/27/1989 Swartz, M. R., "Systems to Monitor and Accelerate Electrochemically Induced Fusion Reactions".

08/406,457 03/20/1995 Swartz, M.R., "Apparatus To Determine The Activity Of A Sample Loaded With Isotopic Fuel"

09/573,381 05/19/2000 Swartz, M.R. "Method And Apparatus To Integrate Reactors Involving Reactions Within A Material" --

Please replace on page 2, the OTHER PUBLICATIONS list with the following rewritten list:

-- C. A. HAMPEL, Rare Metals Handbook, Reinhold Publishing Corp, (1954).

M. HANSEN, Constitution of Binary Alloys, McGraw-Hill Book Co., Inc (1958).

J. R. MELCHER, "Continuum Electromechanics", MIT Press, Cambridge, (1981).

C2

J. O'M BOCKRIS, K.N. REDDY, "Modern Electrochemistry", Plenum Press (1970).

C. A. HAMPEL, Rare Metals Handbook, Reinhold Publishing Corp, (1954).

M. HANSEN, Constitution of Binary Alloys, McGraw-Hill Book Co., Inc. (1958).

C. J. SMITHELLS, Metals Reference Book, Butterworths Scientific, (1949).

H. H. UHLIG, Corrosion and Corrosion Control, John Wiley & Sons, Inc., (1971).

M. SWARTZ, "Quasi-One-Dimensional Model Of Electrochemical Loading Of Isotopic Fuel Into A Metal", Fusion Technology, 22, 2, 296-300 (1992).

M. SWARTZ, (1994A) "Isotopic Fuel Loading Coupled To Reactions At An Electrode", Fusion Technology, 26, 4T, 74-77.

M. SWARTZ, (1994B) "Catastrophic Active Medium Hypothesis of Cold Fusion", Vol. 4. "Proceedings: "Fourth International Conference on Cold Fusion", EPRI and Office of Naval Research.

M. SWARTZ, "A Method To Improve Algorithms Used To Detect Steady State Excess Enthalpy", Transactions of Fusion Technology, 26, 156-159 (1996).

C2 concl'd

M. SWARTZ, "Consistency of the Biphasic Nature of Excess Enthalpy in Solid State Anomalous Phenomena with the Quasi-1-Dimensional Model of Isotope Loading into a Material", Fusion Technology, 31, 63-74 (1997A).

M. SWARTZ, "Hydrogen Redistribution By Catastrophic Desorption In Select Transition Metals", Journal of New Energy, 1, 4, 26-33 (1997B).

M. SWARTZ, "Codeposition Of Palladium And Deuterium", Fusion Technology, 32, 126-130, (1997C).

M. SWARTZ, Improved Electrolytic Reactor Performance Using π-Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 (1998A).

M. SWARTZ, "Patterns of Failure in Cold Fusion Experiments, Proceedings of the 33RD Intersociety Engineering Conference on Energy Conversion, IECEC-98-I229, Colorado Springs, CO, (1998B).

A. VON HIPPEL, "Dielectric Materials and Applications", MIT Press, (1954)

A. VON HIPPEL, D.B. Knoll, W.B. Westphal, "Transfer Of Protons Through 'Pure' Ice I_H Single Crystals", J. Chem. Phys., 54, 134, (ALSO 145), (1971). --

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Please replace the third paragraph on page 2, lines 15-21, with the following paragraph:

C3

-- The present invention relates to electrochemical reactions in or about metals, such as palladium which has been electrochemically loaded with deuterium, but it has relevance as well, to hydrogen loading, nuclear fusion, and other reactions in loaded metals such as titanium or palladium filled with deuterium, and to the broader field of metallurgy and engineering in or about metals, including Groups IVb, Vb, and some rare earths. --

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Please replace the third paragraph 4 [addition to line 9] with the following paragraph:

C4

-- FIGURE 2 is a crossectional drawing of a lamellar reactor. This device has two orthogonal applied electric fields. The second applied electric field intensity is delivered after full charging. Between these slabs of the cathode alternate deuteron-impermeable barriers. --

Please replace the second paragraph on on page 5 [addition to lines 5-9] with the following paragraph:

C5

-- The power supply and control unit consists of a current source and reactor control device as described in Swartz (07/339,976; 08/406,457; FUSOR power supply, JET Energy Technology, P.O. Box 81135, Wellesley Hills, MA), and are not shown in the figure. The application of said power source creates an applied electric field intensity which produces cation flow towards the cathode as described in 07/339,976, 08/406,457, Swartz, M., 1997A, "Consistency of the Biphasic Nature of Excess Enthalpy in Solid State Anomalous Phenomena with the Quasi-1-Dimensional Model of Isotope Loading into a Material",o Fusion Technolgy, 31, 63-74, and Swartz, M., 1998A, Improved Electrolytic Reactor Performance Using π-Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85]. The codeposition is described in "Codeposition Of Palladium And Deuterium", Fusion Technology, 32. 126-130 (1997). There results in the near cathode solution (labelled as 5 in figure 1) a buildup of deuterons, and a low dielectric constant (gas bubble) layer. The bubbles are labelled as number 10 in figure 1. There may be spikes on the cathode (labelled as 11 in figure 1). --

Please replace the third paragraph (last) on page 5 [with addition to line 14] with the following paragraph:

C6

-- Figure 2 is a crossectional drawing of a lamellar CAM reactor [Swartz. M., 1994B, "Catastrophic Active Medium Hypothesis of Cold Fusion", Vol. 4. "Proceedings: "Fourth International Conference on Cold Fusion", EPRI and Office of Naval Research; Swartz, M., 1997B, "Hydrogen Redistribution By Catastrophic

C6 concl'd

Desorption In Select Transition Metals", Journal of New Energy, 1, 4, 26-33]. This device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons. The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20. The deuteron impermeable barrier is comb-shaped in this preferred configuration, and is labelled 55 in figure 13. --

Please replace the first paragraph on page 6 [addition to lines 3-5] with the following paragraph:

C7

-- The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barri-r(s) act to enhance the desired reactions as described in Swartz, M., 1998A, Improved Electrolytic Reactor Performance Using π-Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85]. --

Please replace the 3rd paragraph on page 6, lines 15-24, with the following rewritten paragraph:

C8

-- These CAM devices are inserted, similar to a fuse onto a holding board, held in place by clips as described in 09/573,381. The three CAM device are connected to a microprocessor control system as described in 07/339,976 and 08/406,457. Said apparatus has an electrical bus to connect the anodes -which are connected to the anodic connectors (labeled 82). Said apparatus has an electrical bus to connect the cathodes (labelled 106 and 107) which are connected to the cathodic connectors (not labelled in the figure, but of a specialized socket described in 09/573,381. The cathodic system buses (106 and 107) are electrically shorted together during the deuterium charging. --m